

## **Groundwater Radon Anomalous Decrease Before the 2003**

### **Chengkung Earthquake in Eastern Taiwan**

T. Kuo<sup>1</sup>, K. Fan<sup>1</sup>, H. Kuo<sup>2</sup>, Y. Han<sup>1</sup>, & Y. Lee<sup>3</sup>

<sup>1</sup>Department of Mineral and Petroleum Engineering, National Cheng Kung University, Tainan, Taiwan

<sup>2</sup>Central Weather Bureau, Taipei, Taiwan

<sup>3</sup>Water Resources Agency, Ministry of Economic Affairs, Taipei, Taiwan

(Correspondence to: T. Kuo, E-mail: [mctkuobe@mail.ncku.edu.tw](mailto:mctkuobe@mail.ncku.edu.tw) )

#### **Abstract**

The 2003 Chengkung earthquake of magnitude (M) 6.8 on December 10, 2003 was the strongest earthquake near the Chengkung area in eastern Taiwan since 1951. The Antung radon-monitoring station was located 20 km from the epicenter. Approximately 65 days prior to the 2003 Chengkung earthquake, precursory changes in the groundwater's radon concentration were observed. The radon anomaly was a decrease from a background level of 780 pCi/L to a minimum of 330 pCi/L. Observations at the Antung hot spring suggest that the groundwater radon, when observed under suitable geological conditions, can be a sensitive tracer for strain changes in the crust preceding an earthquake.

